I Claim:

1.   A multi-frequency tone detector comprising an analysis filter for detecting the tone energies of an input signal at a plurality of tone frequencies of interest and a

5   decision logic block for detecting presence or absence of said tone frequencies of interest based on said detected tone energies, characterized in that a total energy calculator is provided for calculating total energy of the input signal and said decision logic block detects the presence or absence of said tone frequencies by calculating background energy as total energy minus the tone energies of said input signal at said

10   plurality of tone frequencies of interest, and for each of said tone energies (i) calculating a roll-off signal-to-noise ratio for said analysis filter, (ii) failing any of said tone frequencies of interest for which said tone energies are less than said roll-off signal-to-noise ratio times said background energy and (iii) otherwise passing said tone frequencies.

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2.   The multi-frequency tone detector of claim 1, further characterized in that said analysis filter has a window size chosen such that adjacent ones of said tone frequencies of interest are located at spectral nulls of said filter.

20   3.   The multi-frequency tone detector of claim 2, further characterized in that said window is a rectangular window.

4.   The multi-frequency tone detector of any one of claims 1, 2 or 3, characterized in that said analysis filter is a digital filter.

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5.   A multi-frequency tone detector comprising an analysis filter for detecting the tone energies of an input signal at a plurality of tone frequencies of interest and a decision logic block for detecting presence or absence of said tone frequencies of interest based on said detected tone energies, characterized in that said analysis filter

30   has a window size chosen such that adjacent ones of said tone frequencies of interest are located at spectral nulls of said filter.

6.   The multi-frequency tone detector of claim 5, further characterized in that said window is a rectangular window.

7.   The multi-frequency tone detector of any one of claims 5 or 6, characterized in
5   that said analysis filter is a digital filter.

8.   The multi-frequency tone detector of claim 5, further characterized in that a total energy calculator is provided for calculating total energy of the input signal and said decision logic block detects the presence or absence of said tone frequencies by
10 calculating background energy as total energy minus the tone energies of said input signal at said plurality of tone frequencies of interest, and for each of said tone energies (i) calculating a roll-off signal-to-noise ratio for said analysis filter, (ii) failing any of said tone frequencies of interest for which said tone energies are less than said roll-off signal-to-noise ratio times said background energy and (iii)
15 otherwise passing said tone frequencies.